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ABSTRACT

The use of television as an instructional media in universities can be enhanced through adequate financial backing, creative programing, and circumspective planning which provides for faculty-student interaction. To facilitate the implementation of instructional television programs, it is necessary to obtain faculty and administration support and to minimize bureaucratic impediments. Potential users of instructional television should make certain that television is the best media to present their educational objectives, and the television teacher must develop a reservoir of technical information regarding the most efficacious use of the media. A trained planning and development team is useful in the implementation and evaluation of new programs. This extensive overview of television in the university includes a literature review and discussion of advantages and disadvantages; user attitudes; administration; and the television learning process. (EMH)

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Instructional Television and the University: An Overview

by

Kenneth J. Klima[1]

Illinois State University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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[1]Currently Coordinator of Research, Evaluation, Consultation and Education, La Porte County Comprehensive Mental Health Center, 1304 Jefferson Ave., La Porte, Indiana 46350

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INTRODUCTION

Of all the teaching technologies, educational television (ETV) has probably received the most studied attention.[1] The purpose of this paper is to summarize research specific to college instruction and relevant to the following questions:

(1) What are the advantages and disadvantages of television as a technical medium?

(2) What has intensified research revealed about the variation in instructional television (ITV) program characteristics and their effects on student learning?

(3) How should ITV be used in the classroom?

(4) What factors determine the acceptance or rejection of ITV by faculty, students, and administrators?

While these questions seem rather distinct within themselves, the literature is not so easily classifiable. This paper will therefore include a great deal of information beyond that which is indicated by the above four questions. In each case, however, elaborations may be readily traced to the above four emphases.

There are certain aspects of televised instruction which are basic to any understanding of its effect on the educational process. Perhaps the most important of these aspects is the constant reminder that the utilization of television is nothing more nor anything less than the utilization of another "tool". At times, television has been viewed as a do-all, end-all solution

or threat to the total future of the educational process. Those individuals who mistakenly propounded such ideas failed to understand the true nature of the medium. Television is neutral. It impartially disseminates mediocrity or brilliance from studio to classroom, and, as is the case with any instrument, its total effectiveness depends solely upon those who employ its technology.[2]

As a technological phenomenon, however, the use of television involves three basic fundamentals: origination, distribution and presentation. Programs or instructional materials must be organized in such a manner to allow for their handling by television equipment. Once the content and format of the program have been properly formulated and prepared for broadcasting, the programs are then distributed to receiving stations for instructional use.[3] Admittedly, this is a very gross and quite cursory treatment of the electro-mechanical process involved; however, the mechanics of televised instruction are not a primary focus of this paper. What is of importance, however, are the advantages and disadvantages of the medium from the practical viewpoint of a potential user or advocate.

CHAPTER I

ADVANTAGES AND DISADVANTAGES OF THE MEDIUM

The following is a resume of the principal advantages which appear to be inherent in the use of television technology:

1. Television has the capability of overcoming classroom limitations by bringing demonstrations into the classroom[4,5] and providing intimate views to every student at the same time.[6, 7, 8, 9, 10]

2. Television is a vehicle for the "master teacher" since it permits more students to benefit from his teaching.[11, 12, 13, 14, 15, 16, 17]

3. Television allows for the wide distribution of programs to a variety of locations simultaneously.[18, 19, 20, 21]

4. Television provides a sense of immediacy or timeliness to classes where such a feeling is instructionally helpful.[22, 23, 24]

5. While watching television, there seems to be an intimacy of communication in that the televised figure appears to be talking to each student individually.[25, 26, 27]

6. Situations may be presented on television when their observation by any other means would cause a gross disturbance.[28, 29]

7. Through the use of videotaping, television eliminates the need for repetitive teaching and allows for the rebroadcast of special events.[30, 31, 32]

8. Television can readily present masses of visual and auditory information.[33, 34]

9. "Television is a synthesizer." It has the capability of compressing time and space, editing reality and, with virtually comparable success, incorporating all the classical instructional tools of the classroom[35] including nearly all AV materials.[36]

10. Television makes it possible for a classroom instructor to present to each of many small classes, special instructional materials or guest speakers who would not normally be available.[37]

11. Because of time limitations imposed by the scheduled use of television technicians, instructors are forced to engage in greater planning organization of course material. While these responsibilities are considerably greater, the satisfactions are likely to be of commensurate magnitude.[38]

12. Televised instruction insures congruent presentations to all viewers.[39]

13. Perhaps one of the most significant satisfactions of televised instruction is that students must take on increased responsibility for manipulating their instructional materials.[40]

14. Televised instruction is as effective with small groups as with large groups.[41]

15. Television concentrates attention.[42]

16. Television is flexible in the sense that various photographic techniques (close-ups, medium shots, etc.) may be used to emphasize instructional materials.[43]

17. The use of television may provide a means of overcoming an inadequate number of instructors.[44, 45]

18. The use of ITV can overcome space limitations since nearly any room can serve as a classroom.[46, 47]

19. Television is action-oriented and dynamic.[48]

20. The fact that televised instruction places classroom techniques before the critical eyes of departmental colleagues means that better prepared and more skillful teaching is the result.[49]

21 Television may be utilized in learning experiences where aural and visual drill are required.[50]

22. When special testing involves specific discriminations not reducible to writing, television often may prove to be a useful tool.[51]

23. Television allows for the presentation of "content" materials while freeing the instructor for individualized help or to engage in further instructional endeavors.[52]

24. Television may even provide a welcomed change of pace or lift.[53]

Although this listing of specific advantages is not complete, it does serve to enumerate some of the major benefits to be derived from television technology. It is unfortunate that the medium also has certain disadvantages:

1. Televised instruction provides an unidirectional flow of information[54,55] proceeding at a given rate, preventing class discussion, and ignoring student questions.[56,57,58,59] Experimentaion in utilizing two-way communication between the class instructor on television and the viewing student has shown that student learning in this situation is significantly inferior to both face-to-face instruction and one-way television.[60]

2. Televised instruction tends to encourage a passive type of learning instead of active and seeking.[61,62]

3. The use of television is the antithesis of individualized instruction[63,64] since students do not receive personal attention.[65,66]

4. Whatever is contributed to the educational process by student-teacher interaction seems to be lost with the use of television.[67,68] While it may be argued that students in televised courses tend to have greater individualized contact with their instructor, there are instances where this has not been the case.[69]

5. Television tends to be impersonal, remote, and cold as opposed to personal intimate and warm. (Experimental findings actually are equivocal on this point and do not favor one interpretation over the other. These particular characteristics of televised instruction are easily colored by program content.)[70]

6. The relative effectiveness of teaching by television is inversely related to those learning situations where two-way communication is of paramount importance.[71]

7. A massive use of television may present serious scheduling problems.[72]

8. The effective use of television requires that large sums of money be available for the continual upgrading of program quality.[73]

9. Classrooms should be constructed so as to allow for maximal visual and auditory reception by all students.

Taking all factors into consideration, it appears as though instructional television has the capability of contributing significantly to the educational process. The advantages appear to weigh heavily in comparison with the disadvantages, many of which, in turn, may be compensated for at minimal cost. The question which arises, however, is how should ITV be best used?

There has been a long-ranging and unresolved conflict between those who feel ITV should be used as the "total teacher" and others who maintain it is most effectively used as an adjunct to normal classroom routine--a technique of enrichment. Proponents of the total teaching concept argue that the medium is too valuable an educational tool to be limited to merely occasional usage[74] and that its employment as an economy move may provide additional funds for situations where face-to-face instruction is indispensible.[75] Objections to total teaching by television are sometimes voiced by those who fear a punch-press type of education where standardization and conformity are the rule. These individuals fail to realize, however, that the same criticism may be levied against the textbook which itself has not posed a significant threat to individuality.[76]

As a tool of enrichment, television offers opportunities for the classroom teacher to incorporate a wide reservoir of instructional materials into the educational process by exposing students to a variety of selected stimuli.[77,78] At the same time, the value

inherent in face-to-face instruction may still be preserved.[79]

As early as 1962, Wilbur Schramm stated:

> Experience indicates that the most effective uses of television have been in situations where it has been combined carefully with other activities in a total learning situation, and where students were strongly motivated to learn from it. This challenges education to make a broad review and restructuring of what happens in the classroom. Television can share the best teaching and the best demonstration; self-instructional materials can conduct drill expertly and give the student a new freedom to work at his own rate. A teacher who has these devices working for him may not have exactly the same duties as before, but his duties will be no less important. The student who has these devices working for him will not spend his day as before, but his learning opportunities will be no less, and probably considerably more.[80]

In this final analysis, it appears as though television has a role to play as both an adjunct to regular classroom teaching and as a means of providing total instruction. As an enrichment tool, television can be immensely effective and timely when used creatively by the classroom teacher. As the total teacher, instructional television does not appear to effect less learning than classical face-to-face instruction,[81] and may be ideally suited to carry the bulk of teaching under certain conditions. The question, however, of when the medium should be used as the sole purveyor of instruction as opposed to an enrichment tool involves a complex of administrative and practical considerations which will be taken up at a later point.

The fact of the matter is that students do learn efficiently and effectively from television. Research has repeatedly shown that there are no significant differences in learning between face-to-face and televised instruction.[82,83] This fact has been

proven at all levels of education in experimentation with such diverse subjects as calculus, engineering, anthropology, electronics, art, music, literature, physical education, driver education, French, Russian, typewriting and many more. The overwhelming conclusion is that the average student is likely to learn as much from televised instruction as he is from ordinary classroom methods.[84] On the negative side, however, data generally indicate that primary and secondary school students learn with greater efficiency from televised instruction than do college students.[85] While this difference appears to be small, it does serve to emphasize the nagative aspects of the medium and their inhibitory effect on learning at the college level. Criticism has most often been directed at the <u>television medium</u> for failing to provide whatever it is that facilitates learning. Too often, the <u>content</u> and <u>format</u> of the programs themselves have been conveniently overlooked in spite of the fact that they are often the primary cause of the medium's failure.[86] College professors are particularly guilty of a stale and unimaginative approach to the formulation of program content. This lack of creativity on the university level has been noted in the past [87] and may still be a dominant characteristic of college television today.

In 1952, R.H. Eckelberry stated, "Television seems to offer greater possibilities than any other development since the invention of printing. Colleges and universities should lead the way in realizing these possibilities." [88] As early as 1955, results of studies indicated that students suffer little loss in

learning from courses taught on television in comparison with classes conventionally taught.[89] Since that time, the declaration of no significant difference in learning has been repeatedly supported in the literature,[90, 91, 92, 93] and yet in spite of these overwhelming research findings, university faculty members still seem to resist the use of ITV[94, 95] as they did in 1955.[96]

In a 1969 publication, Dubin, Hedley, et. al., studied those factors which appeared to play the greatest role in determining the acceptance level of ITV on the college campus. The reasons why televised instruction has not been widely used on the university level may well be embedded in the following observation:

> We are thus confronted with a highly visible technical innovation, the intended consequences of which are neither better nor worse than the technology it replaces. Under these circumstances, it is especially important to examine the attitudes of actual and potential users and consumers of the innovation. Their outlook may very well make the single most important difference in whether the innovation will be adopted; and if adopted, whether it will be successful.[97]

CHAPTER II

ATTITUDES AND ATTITUDE CHANGE

The success of instructional television on the college campus seems to be intimately involved with the attitude of both faculty and students. Among faculty members, attitudes may be based on sound, rational and objective thought or they may merely represent irrational, emotional responses which reflect, in some cases, insecurity and rigidity. In the same fashion, student opinions of ITV may find their base in logical thought or may be the result of subjective and illogical thinking. Such diverse attitude formulations may prove to be difficult obstacles to contend with in attempting to modify the climate of acceptability at any university.

There does, however, seem to be certain generalities which may be drawn to capsulize the continuums upon which attitudes are based. These continuums appear to be somewhat specific to each segment of a university population and, therefore, require individual treatment. For example, the opinions of university faculty members may be determined by:

1. The degree to which ITV serves as a threat to their position;[98, 99, 100, 101]
2. The technical difficulties foreseen in using the medium and fears of technical failure;[102, 103]
3. Desires to avoid additional workloads felt to be inherent in television programming;[104]
4. The extent to which educational experimentation is accepted and practiced by faculty members;[105]

5. The degree to which the use of ITV is interpreted as a crutch for inferior teaching;[106]

6. Personal estimates of overall effectiveness;[107, 108]

7. Perceptions of television as being irrelevant to particular academic areas;[109]

8. Desires to maintain individual autonomy and to avoid the rigid classroom techniques felt to be unavoidable when using televised programs.[110]

Of all levels of education, faculty members at the university level show the greatest resistance to the use of televised instruction.[111, 112] Indeed, if television is newly introduced to a university with inadequate preparation and faculty support, resistance may become explosive in nature. In spite of initial resistance, however, if ITV is introduced successfully, attitudes are likely to change in favor of the medium.[113] The greatest level of acceptance by faculty members has apparently been achieved in institutions which have involved their faculty in the total planning of the program.[114]

In a recent publication, Dubin, Hedley, et. al, conducted an extensive study of faculty attitudes as indicated by research findings over the seventeen or so previous years. One rather prominent conclusion they reached was that "the closer the introduction of educational TV comes to the daily behavior and personal life of the professor, the less positive his attitudes are likely to be toward ETV."[115] In their comprehensive review of pertinent research, they also derived the following observations:

1. Generally, professors are more favorable than unfavorable towards ETV.[116]

2. Certain academic sections (e.g. the arts, business, and humanities) may be more resistive to the use of TV than others (e.g. education and the sciences).[117]

3. Professors are hesitant about using ETV themselves.[118]

4. There is some indication that regular teaching by television causes professors who were initially neutral to acquire unfavorable attitudes toward ETV.[119]

5. Those professors who have had experience with ETV are likely to be more favorable than those who have not.[120]

6. Teaching on ETV produces greater favorable attitudes than merely observing televised instruction.[121]

7. If a professor is favorably inclined toward ETV, he is likely to use it.[122]

8. The chance of television assuming a regular position in university instruction are greatly increased if favorable faculty attitudes outnumber the unfavorable by a ratio of 2 to 1.[123]

9. The degree to which ETV is viewed as favorable varies inversely with professional rank.[124]

10. Instructors who generally teach large classes are least negative about ETV.[125]

11. After a period of association, professors are less likely to regard television instruction as inferior to conventional instruction.[126]

12. Taking all factors into consideration, preparation for a one-hour presentation may take upwards of 5 hours on a closed circuit system, and 9 hours on an open circuit.[127]

13. Although ETV may initially be perceived as being a threat to acedemic freedom, such attitudes are likely to be decreased after a period of association[128] and ETV may eventually be viewed as never having been a threat.[129]

14. Prestige does not decrease with the use of ETV and may even increase.[130]

15. Faculty members seem to feel that students are either neutral or strongly negative about ETV.[131]

16. Most professors feel that ETV is as good as or better than conventional instruction in holding student attention.[132]

17. University faculties generally feel that the television medium may be as effective as conventional instruction in stimulating student interest.[133]

18. Faculty members tend to feel that students will do as well with ETV as with conventional instruction.[134]

19. There seems to be a feeling among faculty members that conventional methods are adequate enough to handle increased enrollments.[135] Large sections seem to be preferred when enrollment pressures are genuine,[136] and only when increases in budget do not correspond with enrollment increases does ETV become generally acceptable for instruction.[137]

20. Generally, college professors are more amenable to the use of ETV when student welfare is at stake and less so when circumstances permit them to be paid for working overtime to accommodate increased enrollment.[138]

In concluding their discussion of faculty attitudes, the authors had this to say:

> It seems perfectly obvious that educational television has the potential of displacing large numbers of teachers from teaching. Whether or not this is consciously recognized among professors, it is a self-evident conclusion. There turns out to be a very obvious counter-measure to this potential threat . . . the professor contends that a major segment of each student's college education must occur within the voice and eye contact range measured from a professor at the podium to the last student in the far corner of the classroom. So long as this contact notion is believed, large numbers of professors will have to be employed to maintain that contact.[139]

In comparison to their elementary and high school counterparts, college students seem to harbor the greatest resistive attitudes.[140, 141] In general, student opinions tend to favor conventional instruction over televised instruction[142] even though achievement is likely to be equivalent under both classroom techniques.[143, 144, 145, 146] Attitudes of college students toward ITV appear to depend on:

1. How much contact students want and feel they will have with a teacher.[147]

2. Whether TV is thought to be interesting or boring.[148]

3. Past experiences with television courses.[149]

4. The conditions of viewing.[150, 151]

5. The technique utilized by the instructor teaching the course.[152, 153]

6. The content of the course.[154, 155, 156] (There is some indication that students are more favorably inclined toward ITV in courses where demonstrations are important and less inclined where discussion and drill are important.)[157]

Other evidence indicates that students may favor direct teaching by television instead of enrichment[158] and that students may prefer small classes to TV classes, and TV to large lecture sections.[159] In their analysis, Dubin, Hedley, et. al. determined the following:

1. Students generally react favorably to the introduction of televised instruction and are likely to become more favorable as experience increases.[160]

2. Students tend to regard television <u>in general</u> more favorably than the televised course of which they may be a part.[161]

3. If given the choice between televised and conventional instruction, students prefer conventional methods.[162]

4. On the average, students modify their attitudes in favor of ITV when faced with the decision of choosing between televised instruction and large class methods.[163]

5. Students are more receptive to televised instruction when they feel they can receive a better presentation.[164]

6. Most students are of the opinion that they may learn as much from televised instruction as from conventional methods.[165]

7. Student opinions seem to be equivocal with respect to the question of whether or not television has the ability of commanding their attention.[166]

As a final comment, the authors added:

> The college student as consumer of teaching does not exhibit any significant resistance to the introduction of educational television in his own instructional program. He will take whatever method or medium of instruction is offered, damn or praise it on its merits, and get on with the business of pursuing his college education.[167]

Recently, Evans and Leppmann studied the reactions of university faculty members and administrators to the introduction of ITV as an educational innovation. Although their study was somewhat restricted in that it encompassed only nine institutions (twenty-seven administrators and some seventy-five faculty members), their comments and observations seem to provide some insightful material which may add considerably to the understanding of faculty attitudes. Certainly, their remarks are important for anyone desiring to effect change within the structure of an established university.

One of the first considerations they mention in the determination of how successful the reintroduction of ITV would be on a particular campus is the extent to which the medium has become "institutionalized." Evans and Leppmann state that the mere presence of the electrical and mechanical paraphernalia of television does not insure that the medium has been accepted by faculty members and even a convincing display of overt approval is little assurance that the innovation has been accepted covertly.[168] It is this second level of acceptance which apparently determines the success or failure of the medium. Faculty members who are convinced that television is an important educational tool and are

willing to use it in their own academic field seem to be the basic ingredient of "institutionalization."

Evans and Leppmann found that under conditions where television was favorably received upon introduction and later abandoned, there seems to be little hope of rejuvenating its widespread use unless the reasons for termination involved economic factors or strong, concentrated opposition as from a particularly powerful administrator. In these instances, it may be assumed that the discontinuance of televised programming was not primarily due to faculty disapproval and that the medium may have become a part of the institution itself. Under these conditions, the possibilities for the successful reinstatement of televised instruction seems to be greatly increased.[169]

While this discussion thus far has been somewhat restricted to the two extremes of total acceptance and total rejection, it should be noted that the position of any one university is likely to be somewhere in between. Year to year variation in the degree to which faculty members may utilize televised instruction adds further confusion to the problem of determining a university's "climate of reception."[170] Once a program is begun, however, it seems evident that a long-range commitment of programmed reinforcement is necessary. Accidental or trial and error adoption usually results in a return to former teaching methods. For institutionalization to take place, administrators must make use of the rewards at their disposal (promotions, overt approval, salary increment, etc.) and develop a long-term program of genuine support.[171]

Evans and Leppmann found that in several institutions the adoption of television was the result of a temporary but genuine university crisis or some strong, enthusiastic advocate fighting for its implementation. Once the crisis passed or the zealous proponent departed, however, the use of television was abandoned in favor of former methods.[172] Other institutions adopted an experimental approach in that they allowed for a trial period of evaluation by an appointed committee. Unfortunately, such arrangements were found to be so organized that termination of the experimental period was, in effect, often a predestined decision of totally rejecting the medium. As Evans and Leppmann stated,

> . . . it is not just the experimental nature of the original adoption, but the frequently immanent termination facility that prevents total acceptance. Once an innovation has been terminated the system clearly has only two choices: one is to move on to another innovation, and indeed . . . some systems move from one innovation to another; the other is a reversion to the old tried and true methods.[173]

The authors cited a variety of reasons which were given by their interviewees in justification for the termination of television usage. Among the most frequent were (1) superficial reasons such as the lack of personnel who knew how to operate the equipment, (2) dissipation of the need, (3) termination of supporting funds, (4) departure of the one enthusiastic proponent allowing the remainder of the faculty to "cool off," (5) faculty hostility, and (6) student resistance. Evans and Leppmann attributed all of these reasons to the lack of "institutionalization" of the medium.[174]

They found that both faculty and administrators resisted the use of televised instruction for many reasons noted previously in this paper. For example, (1) faculty members and administrators were against the use of television because its introduction required additional effort on their part--effort which they were not willing to expend;[175] (2) teaching faculty were fearful of exposing their instructional methods to the scrutiny of their colleagues;[176] (3) at times, television was felt to be a real threat to security feelings and, in some cases, former proponents of televised instruction became resistors when their personal security became threatened;[177] (4) it was sometimes felt that television was some kind of a toy deserving of little attention in a seriously academically-oriented institution;[178] and (5) in many cases, faculty and administrators repeatedly stated that some, if not most, innovations (specifically, ITV) were worthless, that the introduction of an innovation was not tantamount to effecting progress and that, in any case, the relative merit of one innovation as compared with another was a very difficult comparison to gauge.[179]

One charge that the authors heard frequently was that the use of any technological medium waters down the quality of education. Small institutions were found to justify high tuition on the basis of "quality" education through face-to-face confrontation between professors and a small class of students. And even though large universities had found themselves forced into the use of large

class techniques, the idea that quality education is consistent only with personalized instruction persisted.[180]

Unfortunately, however, no one quite knew how to define what the "extra ingredient" was in face-to-face instruction and how it affected the student. Certainly, the objectified and factual examinations which usually concluded a semester provided little insight into that which is gained by classical instructional techniques and lost in televised instruction.[181]

One particularly interesting example of the sophisticated reasoning of university professors was provided by two respondents from different universities. Both professors were noted for being highly creative and innovative in their own fields and both regarded the failure of television at the university level as resulting from a negative report of objective study and comparison. As Evans and Leppmann stated it:

> . . . here are two respondents who take the stand that the slowness of universities to adopt innovations is no particular indictment of the rigidity of the university as an institution, but rather is support for the basic effectiveness of the traditional way of doing things. . . [182]

Other professors rejected TV because they thought that students generally resisted enrolling in television courses.[183] One interesting finding was that faculty members characteristically agreed that ITV had some value for other academic areas but was virtually without merit within their own discipline. By way of example, the authors provided this somewhat amusing episode between a music and math professor:

> The music professor began by pointing out that in his field, television was of no use at all since he is totally dependent on getting feedback from the student. He, the professor, must be sure that the student understands one step before moving on to the next. However, it seemed to him that in an area like math which consisted purely of information dissemination, the presentation of formulas to be memorized by the student, ITV could be most helpful. No so, replied the math professor. In teaching mathematics, it is imperative that the student understand the earlier steps leading to a new mathematical formulation, and only by receiving feedback from the student could the professor be sure that the student is ready for the next step. However, said the math professor, it seemed to him that a course in music, e.g., music appreciation, could very well and efficiently be taught by television.[184]

The complexity of opposition to the successful instatement of televised instruction requires a great deal of consideration and studied attention by any individual desiring to effect change within a university. Perhaps one of the first points to consider is what exactly do faculty professors consider to be an innovation.[185] If we desire to effect change, the evaluation of faculty perspectives seems to provide some indication of the most efficacious method to employ.

The responsibility for the failure of televised instruction on the college campus cannot wholly be placed on faculty resistance without implicating other segments of the university community. In addition to the subjectively irrational reasoning of faculty members already alluded to, the following failures may also contribute to poor acceptance:

1. failure of the university as a whole to support educational television;

2. failure of university administrators to regard the use of television as a vital tool rather than a mere experiment;

3. failure of administrators to maintain their interest in and support of ITV following its introduction;

4. failure of administrator to encourage faculty participation in televised programming.[186]

It seems apparent that the conditions noted in the above four points must be remedied before a program of televised instruction may receive maximal support. The introduction or initial revivement attempts of an ITV program requires a comprehensive campaign with emphasis on the medium's advantage and positive overtones of fulfillment and achievement. For example, TV should be introduced as a means of enhancing job security and satisfaction, as an improvement on certain teaching practices (e.g., demonstrations), as a challenging opportunity to experiment and to express one's creative ideas about instruction, as a fertile means of supplementing present teaching skills to accomplish particular objectives, as a time saver in the sense that a video-taping of complex presentation renders future presentations a mere matter of replaying the tape, as a source of positive recognition by colleagues and students, and as a source of personal growth through involvement with the medium and its educational potentials.[187]

Even before such a campaign is begun, however, it seems important that faculty members must be intimately involved in the planning stages. W. J. McKeachie reported that such a practice seems to weigh heavily in favor of eventual acceptance. He also stated that the introduction of television is likely to receive less

opposition when (1) no one department or faculty member is set apart from the remainder of the faculty as being the "master teacher", or "master department", (2) television provides a means of offering instruction which would otherwise be unavailable, and (3) when the medium has the full and continued support of administrative officials as well as a large faculty contingent.[188]

Carpenter and Reilly stated that in order for faculty members to search out and use TV as an educational tool, they must be made aware of its availability and possibilities. Such information may be disseminated by pamphlet, by oral means or by using the media itself which appears to be the most effective means while the first seems least effective. Another method of increasing faculty awareness would be to create some type of new center on campus with the sole purpose of accommodating such teaching techniques. The authors cautioned, however, that the medium must be proven to be an effective instructional device before faculty members by themselves may seek its use. They indicated that there is little difficulty in seeing that ITV is as effective as normal procedures, but the need is to prove that it is more effective which, as yet, cannot be done in the general case but only under restricted conditions. There are, however, several promotional methods which administrators, in particular, may use to increase the level of acceptance and use of ITV:

1. Directives. These may take the form of suggestions or extend to outright orders to use the medium. One useful approach may be to suggest that a five or ten minute televised insert be utilized in specified courses as a preliminary step to putting the entire course on television.

2. Inducements. Announcements that funds and equipment are available for creative television teaching may induce faculty members to employ ITV in their classroom activities.[189] Other inducements may be reduced teaching loads[190] or salary increments.[191]

3. Indirect Methods. Course boundaries may be so modified that the use of television would seem to be a needed addition. Such an approach may involve an increase in the number of students and a concomitant decrease in staffing, a modification in course objectives or manner in which the course is offered, etc.

These three approaches, however, are somewhat based on the assumption that the deans or department heads desire to utilize television in their college or departmental offerings.[192]

While such methods as these may be employed to gain "institutionalization" of the television medium, they are other aspects of TV usage which deserve consideration prior to the adoption of an extended program. Such considerations vary from practical economics to the aims of education.

CHAPTER III

ADMINISTRATIVE DECISION-MAKING-- TELEVISION AND THE UNIVERSITY

Perhaps the first such precursory consideration which needs investigation is the nature of those educational objectives being pursued by an institution. An analysis of classroom goals, student needs, and available methods of satisfying such needs to meet stated goals should provide a sound means of determining the advisability of engaging in an extended program of televised instruction.[193] The promotion of television should not be undertaken until the job it is to perform is well delineated[194] and television is seen as the most effective means of accomplishing stated objectives.[195] Curriculum reforms also demand that the benefits of ITV be evaluated in terms of changing educational directions and that TV programs be so structured to contribute to curricular adjustments.[196]

It appears as though the use of ITV lends itself quite easily to a behavioral objectives approach to classroom instruction. Clifford G. Erickson at the Chicago City Junior College has stated:

> Educational objectives must be defined in behavioral terms, in terms of the kinds of things we want students to do and the ways we want them to react. And these objectives must be defined for an entire program, for a given course, for an individual lesson.. Full utilization of available techniques is not of itself an adequately formulated goal. Instructional television demands analytic planning at every stage.[197]

Erickson included an example of the format utilized by his institution to achieve quality instruction by television:

> The first step in ensuring instructional quality is to achieve clarity in this definition of objectives. Before we select a television teacher from among our best teachers, and before the teacher selected is allowed to begin preparing his course, we must formulate a set of objectives for his course. This is often a distressing experience for a teacher. At first, he seems unable to do it. He will express objectives in terms of content alone, in terms of what he expects to do, rather than in terms of the reactions or behavior he expects from students. After a period of development, during which he consults with a director skilled in curriculum matter, the teacher does succeed in developing a set of objectives. Once he has done this, he finds that he has a whole new concept of his course. He may choose different text materials; he may even choose a different approach. He proceeds through a series of steps in which he takes his objectives and translates them into an outline to guide him through the course, and into a study guide to direct students in their activities. He devises materials which relate the students to the television instruction, selects reading materials, arranges conferences and assignments, and attends to any number of things. The teacher is really getting ready for his debut as a television instructor.[198]

The reduction of broad institutional goals to college goals to department goals to course goals and finally to behavioral or lesson goals provides a strict delineation of the attributes desired in an instructional medium. If TV has the capability of satisfying curriculum needs beyond that of other means, its adoption is implied. Once the medium is accepted, those same behavioral goals used to implicate its adoption form the guidelines for the construction of program content. It is to be pointed out that in Erickson's statement above, the decision to use TV pre-empted the analysis of course material to determine if such an approach was indeed the most effective. In such instances, the use of televised instruction

may have been forced by economic considerations or other contingencies. The systems approach of deriving specific objectives and weighing those objectives against the advantages of various instructional mediums seems to provide a valuable means of choosing among several approaches.

While the development of behavioral objectives may be of great import in formulating educational programs, an additional benefit can be derived during evaluational procedures. Student behavior could serve as an indication of the success or failure of methods and media used in program construction and pinpoint those areas needing modification in terms of the medium or methodology employed.[199] In 1966, David B. Orr suggested the following integrated program for the evaluation of televised instruction:

1. The preparation by curriculum committees of specific educational objectives to be attained through the use of televised instruction.

2. The collection of concurrent and ongoing information from direct observations and from the students, teachers, parents, and supervisors about pupil behaviors deemed relevant to each of the specific objectives of the televised instruction.

3. The preparation of explicit rationales for the measurement of each objective according to the general procedures outlined above.

4. The development, tryout, and revision of standard, quantitative, and relatively objective measurement instruments for the assessment of the behaviors relevant to the specific objective. (Some of these may take the form of paper-and-pencil tests; others might be rating scales, checklists, or modified performance records.)

5. The application of such instruments to the measurement of the attainment of various program objectives.[200]

Regardless of whether this particular procedure proves to be viable or problematical in itself, the decision regarding the evaluation of ITV demands the close attention of those educational leaders who are concerned with technological instruction.[201]

A second pre-emptive factor needing close consideration prior to the adoption of an extenuated ITV program has to do with finance. The initial outlay for the purchase of capital equipment is certainly the major cost in terms of a continuing program.[202] Following this primary expenditure, however, adequate funds must be available to foster creative instructional development and insure the accomplishment of those objectives for which the program was originally begun.[203] Needless to say, the final cost of an entire project is dependent upon the nature of those missions established for the television service and the staffing required to fulfill such obligations.[204]

Instructional television can be a money-saver. When the Chicago City Junior College began televised instruction in 1956, they found that expenditures were one-third higher than teaching students in the classroom; however, following increased enrollments, administrative adjustments and increased knowledge of the medium, the cost of televised instruction dipped quite substantially below classroom cost (on the order of $100 below conventional instruction per student per year; such a drastic saving, however,

seemed to be due, in part, to having seven to eight hundred students per televised class.)[205] A study of four courses at Pennsylvania State University in the late 1950's found that the cost per student hour of a televised course was $5.44 while conventional classroom procedures cost $9.48. This same study estimated the break-even point to be a class enrollment of approximately two hundred students.[206]

In the early 1960's the University of Illinois investigated comparative costs for some sixty high-enrollment courses. The cost for conventional teaching was in the neighborhood of $1,600,000. The projected cost of using the television medium was calculated under the following assumptions:

1. One half-time professor would be used to develop the instruction.
2. One TV specialist would be used for 10 hours per week.
3. AV materials would be provided.
4. The course would consist of three 50-minute lectures per week recorded on video tape and repeated once.
5. All salaries, service and material costs, plus an allowance for engineering, operation, administration, amortization and depreciation of all equipment was taken into consideration.

The final cost for the same instruction via television was calculated to be $800,000. While this figure was thought to be slightly low, it, nonetheless, points to the direction of economics in regard to using the television medium.[207]

While the magnitude of such savings may strongly appeal to those individuals somewhat given to parsimony, financial gain cannot solely justify the implementation of television programming.

Lester Asheim quoted one knowledgeable participant in a national conference on ETV saying:

> Money saving is not the real justification. The criterion should be the improvement of education. The use of large classes, for example, is of value, not because it saves money, but because large class instruction by television makes it possible for the classroom teacher to concentrate on small classes and giving personalized attention to the students. The result is not the elimination of teachers, but their redeployment.[208]

The abilities of television to accomplish defined objectives and effect financial savings seem to be two of the primary considerations in evaluating whether or not televised instruction is needed. They are not, however, the only considerations. It has been previously mentioned that the inception of a technological innovation needs to be followed by a far-sighted program of support and, possibly, instrumental reinforcement.[209] Administration must be willing to continually encourage faculty to utilize the television medium[210] and also, develop methods of fostering faculty participation in the program and rewarding innovative television teaching.[211] Such willingness may be demonstrated by allocating a liberal amount of release time for instructional preparation[212] and providing credit for such participation in the professional advancement process.[213] Further indications of administrative support may involve the flexibility of newly constructed classroom buildings, revision of the methods of selecting faculty and the structure of an entire educational program.[214] The disposition of administrative personnel with respect to each of these areas needs to be explored and evaluated in an effort to assess the climate of

of acceptability within the administrative quarter of a university since their attitudes may greatly affect the success of the innovations introduction.

In order for a television program to be totally successful, administrators must be willing to cope with rather knotty problems--one such problem being faculty rights. Once a professor has developed a television course and placed the instruction on video tape, what rules will govern the re-use of his program?[215] In 1962 McIntyre and Paden issued the following statement:

> There is no doubt that the re-use of recordings (with revision and modification when necessary) will save money. The principal instructor will be responsible to some extent for this saving, but the institution will have furnished the capital equipment and the skills of television specialists, artists, engineers, and others without whose help the recordings could not have been made. The rights of instructors in the re-use of videotapes has not yet been determined, but some form of extra compensation for the successful television instructor will probably be appropriate. One or two institutions now pay a flat additional stipend for recording instruction; at least one other counts the use of recorded instruction as part of the professor's teaching load.[216]

The amenability of administrative leaders to the increased use of televised instruction bears considerably on the question of whether the medium is to become institutionalized or not. There can be little hope of improving acceptable attitudes among faculty members if administrators do not constitute a strong foundation of advocacy.

This discussion has thus far been limited to (1) the advantages and disadvantages of the television medium, (2) the attitudes of students, faculty, and administrators (3) various methods of

effecting attitude change, and (4) preliminary considerations (primarily on the administrative level) which need to be made prior to the adoption of a protracted program of televised teaching. Another area requiring attention involves the actual interaction between the student and the content and format of the televised program. The aforementioned factors of advantages, disadvantages, attitudes, etc., have their own meaning for a particular segment of the university community and may contribute substantially to any administrative deliberations regarding the acceptance or rejection of massive television usage. Once a decision of adoption has been reached, however, attention becomes focused on the nature of the program itself and its use in the classroom.

CHAPTER 4

TELEVISION AND THE LEARNING PROCESS

Theoretically, the television medium has the unique capability of being able to alleviate certain troublesome difficulties of an educational institution while also providing a framework for creative instructional application. For the enthusiastic teacher, television appears to provide a limitless field for the variation of instructional techniques. While television does possess a full measure of versatility, attention must be acutely focused at program content and the context of the learning situation to ensure instructional efficacy. Greenhill and Carpenter have stated:

> In one sense instructional television is a misnomer; television per se does not instruct, it does not educate, it does not learn. Television itself is a tabula rasa, a blank sheet on a clear channel. It is a potential mediator of instruction, it is an instrument, which may be used to provide some but not all of the conditions necessary for most kinds of learning to occur. It is a facility which makes it possible, but does not necessarily ensure, that interactions occur between the information to be learned and the learner. Within the limits of functions which television facilitates can be expected to perform, the effects on learning depend on how the facilities are used, by and for whom.[217]

Revealed here is the duality of the technological learning experience. Whether or not learning occurs depends on both the content of the experience itself and the context within which the experience "happens." Of immediate interest here is the content of the learning experience, i.e., the television program.

As has been mentioned previously, the television medium basically provides a method for the concomitant presentation of visual and auditory stimuli. Each of these stimuli also functions as a cue to something greater such as a concept, generalization, principle, etc. Television programs must be structured so as to

focus the student's attention on those cues so constructed to promote efficient learning. Large numbers of irrelevant cues only detract from the relevant ones and therefore contribute to confusion and disinterest.[218] Lionel C. Barrow has stated that the two major factors determining the success of a television program are its ability to attract and hold a student's attention and its understandability.[219] While the attention-gathering characteristrics of the program are somewhat dependent on the creativity of the program's originator, various methods of controlling cues are comparatively universal and, therefore, subject to experimentation.

The following generalizations are reflective of certain experiments involving the control of certain cue variations. The literature reviewed here, however, is by no means conclusive. A general dearth of reviews in this area has forced heavy reliance on two primary sources for this summary. There is some indication that learning from films and learning from television involve the same processes and, therefore, any reference covering the production of educational films could be of value in substantiating and elaborating upon those points presented here.[220]

Visual Cues

1. The use of motion in television programs does not appear to universally enhance learning.[221] The movement may enhance learning if it is an integral part of the learning task.[222]

2. Three dimensional programs do not appear to enhance learning.[223]

3. Whether the scenes or sets used for the program look realistic or fake appears to have little effect on learning.[224]

4. There is insufficient evidence to assert that color improves learning.[225] Some experiments have favored black and white presentations.[226] One experiment found that details were more easily remembered in colored presentations while principles were better remembered from black and white productions.[227]

5. The addition of humor or animation to a program does not appear to significantly increase learning.[228, 229]

6. Eye contact between the television teacher and the student does not materially affect learning.[230]

7. An increase in screen size or the magnification of visual stimuli does not improve learning in general.[231]

8. The addition of subtitles improves learning,[232] especially when the material is poorly organized.[233]

9. Visual images enhance the learning process when they facilitate the association process or serve to demonstrate manual tasks. Visual images used otherwise have been found to distract the learner and interfere with efficient learning.[234]

10. A camera angle of 0° (i.e., similar to the view of a student seated directly in front of the instructor) is more effective than oblique viewing angles varying to 180°.[235]

Auditory Cues

11. It appears as though a moderate rate of message delivery contributes more to learning than fast or slow deliveries.[236]

12. Sounds used in a program should be similarly perceivable by students in their environment.[237]

13. Fucherman found that third person imperative and second person (implied) effected the greatest learning while first person was less effective but not significantly so. Third person passive was found to be least effective.[238]

Format

14. In terms of student learning, there appears to be little difference between television presentations involving lectures, interviews, or panel discussions.[239, 240]

15. Some evidence seems to indicate the optimum length of television lesson to be 25 minutes.[241]

16. Dramatic and expository presentations appear to be equally effective for the learner.[242, 243]

17. Introductions and summaries have been found not to significantly aid in learning.[244]

18. The use of motivational questions appears to assist learning although not significantly.[245]

19. Students have been found to acquire more information from very interesting programs than from dull programs.[246]

20. The addition of examples improves learning although there appears to be some optimum level beyond which the inclusion of more examples has little effect.[247]

21. There is some evidence that a slow rate of lesson development results in more learning that a fast rate of development.[248]

22. Students tend to learn more when given immediate knowledge of results.[249]

23. Certain evidence seems to indicate that the inability of students to raise questions and participate in a discussion hinders learning, especially when advanced students are involved or the material being learned is relatively complicated.[250]

24. In terms of learning efficiency, prompt feedback to the television teacher seems to be generally unimportant.[251] (As noted previously, experiments involving two-way communication between students and teacher have resulted in the least learning in comparison with one-way or the complete absence of communication feedback lines.)[252]

25. Active participation of the student in the learning process improves retention.[253, 254, 255, 256]

26. There is some indication that a total review at the conclusion of a program is significantly superior to both the absence of a review or the occurence of two spaced reviews.[257]

The didactic efficiency of televised instruction lies in the carefully controlled planning of the auditory and visual stimuli presented to the student in a given format. Optimum results require a logical interrelatedness of pertinent stimuli presented so that the student's attention is focused on those cues of relative temporal importance. If the demonstration of a manual task is of primary importance, auditory cues should not engage the student's attention. Conversely, important verbal statements should not compete with visual stimuli for the attention of the learner. Not only must the relative importance of cues be established but, before this, a decision must be made as to which type of cue (visual or auditory) is didactically superior for the learner. A verbal description of a tool is inferior to a presentation of the tool itself. Theoretical statements concerning the construction of the tool are more easily handled through verbalization than by a printed text on the television screen.

Benton J. Underwood has indicated that memories may actually be composed of a number of distinct attributes.[258] A collection of attributes serves to distinguish one memory from another and thereby allow for the appropriate recall of a particular target memory. Among those "retrieval" attributes permitting recall are those of a visual and verbal nature. Visual attributes consist of images (or, in the case of television,

pictures on the screen) while verbal attributes are composed of a constellation of words related to the original target word (in the case of television, the auditory portion of a program). While there seems to be a great deal of interchange between auditory and visual attributes, their differential nature holds an important implication for television instruction. The ability of students to accurately retrieve certain memories seems dependent on both the attributes of the memory and the attributes of the situation calling for the memory. Visual discrimination tasks are likely to be more easily mastered if similar past experiences were visual in nature as opposed to verbal. Similarly, verbal situations requiring certain memory retrieval will more easily call forth past experiences of a verbal nature as opposed to experiences of a visual nature. The implication for television is simply this: material used by the student in visual situations should be presented visually, and material used by the student in verbal situations should be presented verbally. If this rule were to be followed, the generalization of classroom education to its field of application would appear to have a greater chance of success.

Theoretical considerations such as those offered by Underwood only serve to underline the need to find out what actually happens when someone learns. In delving into the characterists of efficacious television instruction, the real questions being asked are: how do students learn efficiently,[259] what happens in the classroom,[260, 261] and what aims are educators attempting to achieve?[262] These same questions are being asked by all teachers no matter what their mode of presentation. One

television expert (C. R. Carpenter) has stated:

> The basic question which must be raised in presenting a perspective of televised instruction is: What is good teaching? Teaching implies learning by others, and learning implies observable, detectable, and measurable changes in behavior, including especially the intellectual achievements of students. Good teaching means that skills are acquired by students, information is gained and assimilated, understanding is broadened and deepened, appreciations are extended and enriched, and character is built and strengthened.
>
> Our assessments and judgments of televised instructions, therefore, must be made relative to the broad educational responsibilities of colleges and universities. We should not evaluate television merely as a means of presenting information or of teaching objective facts, however important these functions may be. We must decide for what particular uses, within the full range of academic work and institutional responsibilities, television is effective, appropriate, acceptable, and feasible.[263]

It has been said in the past ". . . that good teaching is much the same on television or films or the lecture platform."[264] If this is indeed the case, then, theoretically speaking, the state of the art of televised instruction is at least on a par with classical classroom techniques.

Little has been mentioned, thus far, concerning the role of the classroom teacher in the world of televised instruction. In those cases where television has been confidently adopted by an educational institution and a proliferation of resource material exists, the teachers' job may consist solely of guiding students through selected experiences according to their individual needs. Instead of being the dispenser of information, the teacher's role would become one of an organizer. As such, television programs could be combined with various other educational devices (films, textbooks, audio tapes, teaching

machines, etc.) to provide the learner with an appropriate and individualized course of study dependent upon his own past experiences and current needs. While the hardware for such a program may be relatively easy to acquire, the "software" (program content) may present difficulties requiring the resources of a number of specialists before beneficial results may be achieved.[265]

Certainly such programs require massive institutional support in terms of financial resources and curriculum reform. But what is the role of the everyday classroom teacher who desires to use television in his instructional presentation? While the role is not at all well-defined, experimental researchers have enumerated several aspects of the learning situation which are under the control of the classroom teacher, and therefore, subject to modification. The following points seem relevant:

1. Television is most effective when used in a suitable context of learning activities.[266] The teacher must integrate televised materials into a well-planned, efficient program of classroom presentations.[267, 268, 269]

2. Motivated students learn more than unmotivated students.[270] Regardless of whether the teacher is present or absent during a TV presentation, he must provide a stimulating classroom atmosphere pursuant to maximal motivational interest for each student.[271]

3. A negative attitude by the teacher toward the use of television can, in itself, ". . . destroy the effectiveness of a whole course of television instruction."[272] Teachers must convey their acceptance of and confidence in the medium to their students.

4. Teachers can help to focus student attention or relevant cues important for learning and direct students to avoid those cues which detract from learning.[273]

5. Students learn more from television programs if they are active participants in the instructional program.[294] The classroom teacher can be important in this respect for he is singly equipped to mete out reinforcement for particularly desirable behaviors [275] and thereby enhance the learning experience.

6. Teacher-directed follow-up has proven to be more effective than repeated showings of a lesson.[276] H. Barrington, in his review of selected studies, has determined that "follow-up work after a television lesson is vital." [277]

7. One of the important advantages of televised instruction is its ability to free the teacher from the time-consuming preparation of individual daily lessons. Students may, therefore, derive additional benefit through increased individualized attention[278, 279] or through the teacher's pursuit in other similarly beneficial directions.

8. Research has shown that instructional television is as effective with very large groups as with small groups.[280, 281, 282] While class size may not be a factor in learning, the physical characteristics of view for each student seems to have a definite effect on retention. Not only are students who have a poor view less enthusiastic about TV,[283] but in those cases where the accurate perception of visual images is important, students who have a wide viewing angle or are at a great distance from the TV are likely to learn less.[284]

9. While student participation in a television program is desirable, note-taking while viewing is likely to interfere with learning processes unless segments of the program are specifically designated for note-taking purposes.[285] Teachers must plan accordingly.

Since viewing characteristics may play an important role in learning, it may be worthwhile to review those classroom conditions yielding optimum results. In his review of the pertinent literature, G. F. McVey has determined the following:

1. Minimum Acceptable Viewing Distance: 4 times the width of the television screen;[286]

2. Optimum Viewing Distance: 6 1/4 times the width of the television screen;[287]

3. Toward a Maximum Effective Viewing Distance: television viewing may still be effective at 12 or 14 widths away from the screen provided symbol size, symbol brightness, and ambient illumination are themselves optimally conducive;[288]

4. Ambient Illumination: possibly because of the nature of the mechanism of the eye, television in a lighted room may be viewed at a greater distance than films in a darkened room (no information given as to optimal lighting condition);[289]

5. Recommended Symbol Size: 30 degrees of arc or, in other words, a symbol measuring one inch on the screen and viewed at a distance of 10 feet;[290]

6. Symbol Brightness: symbol legibility is directly related to symbol brightness which for television is three times what it is for most film projectors;[291]

7. Horizontal Viewing Angles: (a) optimal viewing desirability decreases as the distance from the viewer to the screen increases (limits of range: 2 screen widths to 14 screen widths); (b) viewers 15° either side of a perpendicular line drawn from the television tube and within the distance limitation have the best viewing angle; (c) viewers in those sections of 15° to 45° on either side of the perpendicular must use compensatory head movements and are therefore more subject to fatigue; (d) viewers beyond the 45° angle of view experience severe image distortion destructive to the learning experience; (e) viewing is "optimal" in the horizontal plane from 4 screen widths to 6 1/4 widths from the television, "acceptable" from 6 1/4 widths to 10 widths, "acceptable for high resolution systems" from 2 widths to 4 widths, and "acceptable when symbol size is adequate" from 10 widths to 14 widths away from the television screen.[292]

8. Vertical Viewing Angles: "The optimum sight line lies 5 degrees below the perpendicular visual axis parallel to a level floor . . . Extreme variance from this angle causes eye fatigue and also produces a physical strain on the viewer's skeletal system. . . . It is recommended that a viewer seated in the front row not be faced with a visual

> task located more than +15° above the optimum line of sight while a viewer seated in the last row not face a vertical angle of depression greater that -24° . . . ."[293]

Certainly many of the physical features of a normal classroom preclude realignment to accommodate the optimal viewing conditions noted by McVey. The classroom teacher may, however, have some control over the visual images projected on the television screen and, in this way, have some measure of control over program perceptibility. Similarly, seating arrangements can be temporarily shifted during televised segments to allow each student maximum visual opportunities.

What seems evident from all this is that the classroom teacher needs to be informed. He needs direction in utilizing television for those purposes for which it is best suited, he needs principles which will guide the integration of television into his personal instructional technique, he needs information about visual and auditory cueing, and he needs to be exposed to various classroom techniques utilizing television, among many other things. In short, it seems evident that, for maximum returns, teachers must be involved in in-service training activities. Such training should be conducted on a regular, routine basis. Special courses away from the campus may prove helpful, but will likely be inadequate in effecting continuous, long-term improvement.[294]

ITV and Individual Differences

The inability of the television teacher to gauge the effect of his presentation on the student[295] and adjust it accordingly[296] would seem to have a very definite effect on

the variable rates at which students learn. In 1960, Hideua Kumata stated: "Intelligence is a prime factor. TV seems to affect intelligence levels differently but exactly how has not been shown."[297] Two years later, Wilbur Schramm added:

> It may well be, as some recent and unpublished research suggests, that both the brightest and the slowest students derive some differential benefit from televised teaching--the former, because they learn rapidly anyway, and television can theoretically offer them a greater number and variety of responses to learn; the latter, because television concentrates their attention as the classroom often does not. But it must be admitted that we do not yet understand the relation of mental ability to differential learning from television.[298]

W. J. McKeachie reported in 1963 that ". . . student ability generally does not make a difference in the relative effectiveness of television."[299] However, in a more recent research summary (1965), H. Barrington maintained that the question was still in need of researching.[300] Although other, more recent information may be available in this area, none was encountered by this author.

There also seems to be a general dearth of information regarding the intangible elements of educational experiences. In what few research summaries are available. however, the trend seems quite clear. In terms of the intangible qualities nurtured or conveyed through instructional encounters, students taught by television appear to be no different from students conventionally taught.[301, 302] Whatever is happening in the "live" classroom to stimulate personality development seems also to be happening in the television experience regardless of decreased face-to-face contact in a group setting.

CHAPTER V

SUMMARY AND CONCLUSIONS

Intense research into the realities of television in the classroom has revealed a number of advantages which weigh heavily in favor of the medium's use. The disadvantages of television technology seem to be readily compensated for through adequate financial backing, creative programming, and circumspective planning to include student-teacher contact situations where questions may be answered and/or students and teachers may engage in lively discussion. It is apparent that the extensive use of television on the university campus is largely dependent on faculty and administrative attitudes and less so on student attitudes. Administrators wield several of the controls which appear to bear directly on the activities of faculty members. Salary increments, promotion, special recognition, to name a few, may all be used to stimulate faculty use of the medium, and while faculty acceptance may initially be low, increased experience seems to promote increased acceptance. Unless administrators are willing to solidly back the use of television in a protracted program, the medium appears to have little chance of "catching on" among the faculty. Strong administrative support, however, is no guarantee of faculty acceptance.

Before engaging in a strong program of advocacy, however, administration officials must determine that television is the most appropriate of the technological innovations to accomplish stated institutional objectives. Not only will this determination be of assistance in a "selling job" to a faculty, but it also provides

a ready means for evaluation of the medium's effectiveness. Likewise, faculty members need to compare individual lesson needs with those needs fulfilled through the use of television. The establishment of specific requirements provides a ready basis for the evaluation of instructional techniques. University-wide television usage may be indicated by factors other than those concerning educational aims. Television has the power to effect great financial savings, an important characteristic for a struggling institution.

The classroom teacher desiring to use television must, of necessity, command a large reservoir of information regarding the most efficacious methods of program construction and classroom use. Since information of this nature is not itself completely static, on-going, regularly scheduled training activities seem sorely needed. While teachers may be sincerely concerned with the effect of television on the intangibles of education and on students of different learning rates, research seems to indicate that the gains achieved by conventionally taught students are equivalent to those achieved by the television student.

Achievement of quality TV programming appears to require a planning and development team with knowledge in the following areas: curriculum construction, learning psychology, individual and group instruction, message design and media potentialities, specific course content areas, and measurement and evaluation.[303] Certainly such competencies as these are needed for circumspective television teaching, but there remains a rather nebulous factor

seemingly necessary but difficult to specify. In 1962, Lester Asheim identified this additional factor thusly:

> All of the arguments, pro and con, and all of the problems and proposed solutions, can probably be summed up succinctly as follows: Educational television is an instrument of great potential value in improving the quality of education in all subject matters and at all levels--if it will be used creatively and imaginatively.[304]

It is in the application of new techniques that discoveries are made, effective guidelines established, and teaching methods improved. No one can hope to compensate for a stale and stagnant instructional method by putting it on television. It simply will not work. The medium demands a fresh approach to education, incorporating the essentials of the learning process in a new framework of visual and auditory experience.

FOOTNOTES

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11. Schramm, p. 67.

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13. Hayden R. Smith, "What's Wrong With ITV?", Education, (February, 1969), 89, p. 258.

14. The Institute for Communication Research, p. 4.

15. M. H. Smith, p. 109.

16. Williams, p. 118.

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18. Asheim, p. 21.

19. Adams, et al., p. 11.

20. Keith Tyler, "Educational Implications of the TV Medium", AV Communication Review, (1964), 12, p. 63.

21. C. R. Carpenter and Susan Smith Reilly, (Eds.), "Quality Factors in Instructional Materials: Significant Statements by Authorities", ED 037830, p. 19.

22. Schramm, p. 67.

23. H. R. Smith, p. 258.

24. Tyler, p. 63.

25. Asheim, p. 21.

26. H. R. Smith, p. 258.

27. Williams, p. 118.

28. Adams, et. al., p. 11.

29. The Institute for Communication Research, p. 4.

30. M. H. Smith, p. 109.

31. Massey, p. 19.

32. H. R. Smith, p. 258.

33. Adams, et. al., p. 11.

34. Tyler, p. 63.

35. M. H. Smith, p. 258.

36. Tyler, p. 63.

37. M. H. Smith, p. 109.

38. Ibid.

39. Ibid.

40. Ibid.

41. H. R. Smith, p. 258.

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